

# Blue Ribbon Water Task Force Presentation



## Prepared by:

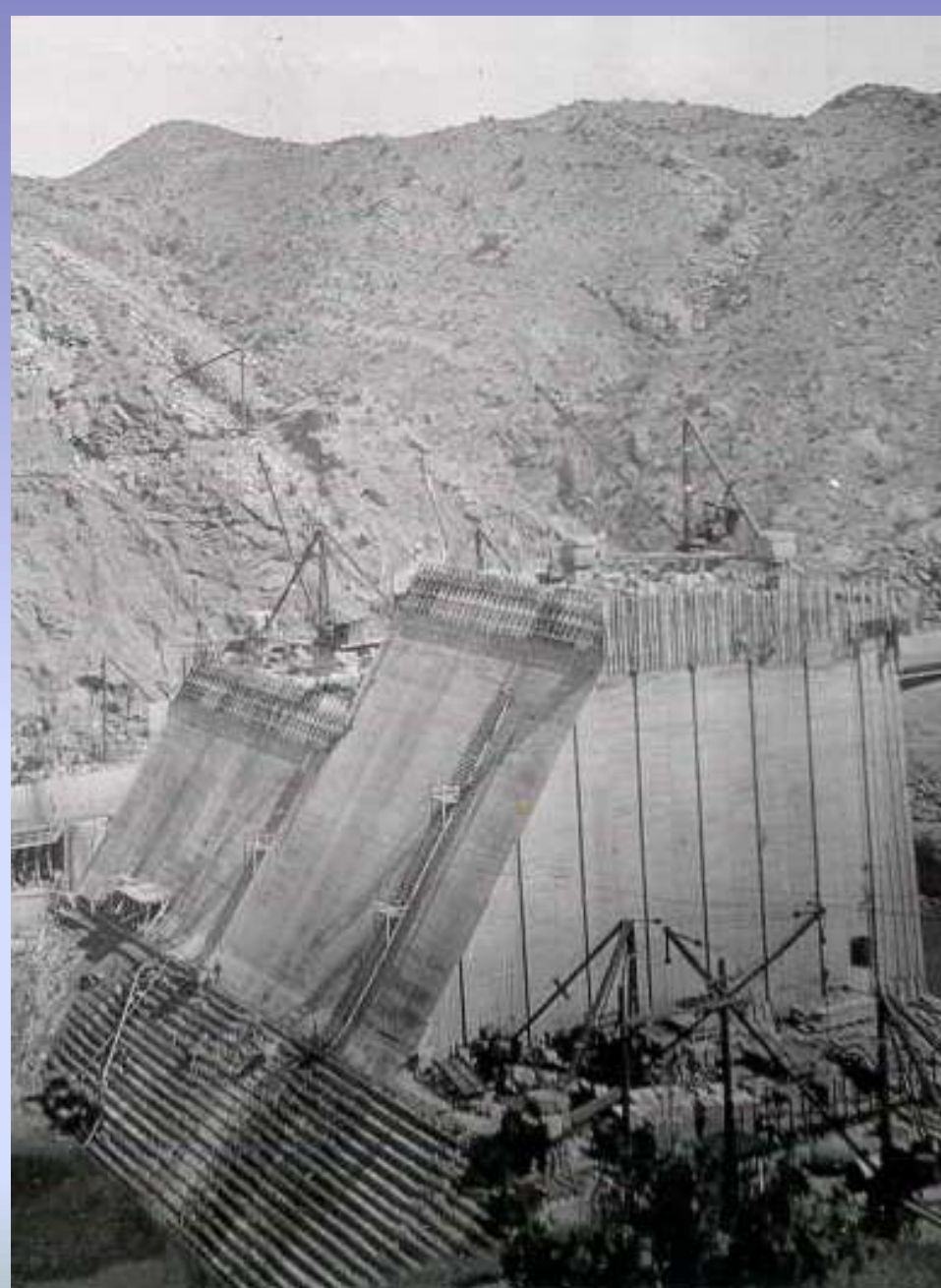
- Elephant Butte Irrigation District
- New Mexico State University,  
Dept. of Civil Engineering
- Hubert & Hernandez P.A.

**EBID**

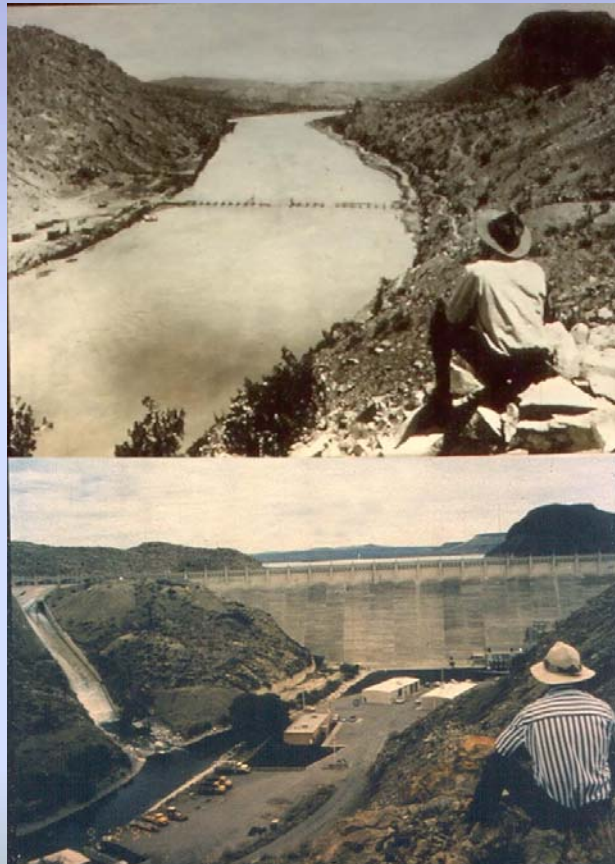


# Outline

- Historical allocation, operations and Current water outlook
- Surface water management and monitoring
- Groundwater management and monitoring
- Water management and monitoring through GIS applications
- Water management through Web interaction
- M&I use of Ag. Water from an Irrigation District



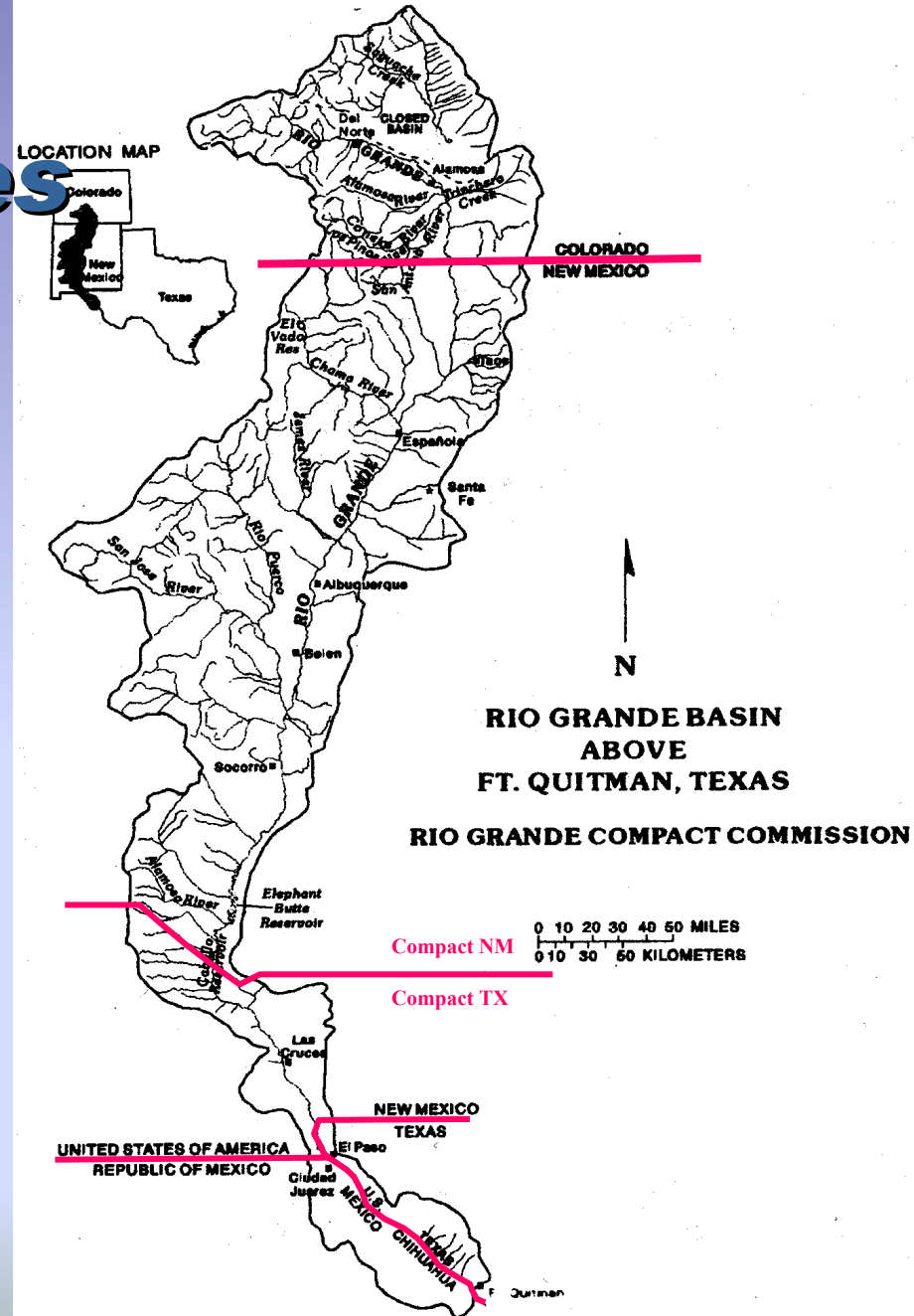
# Historical Allocation, Operations and Current Water Outlook



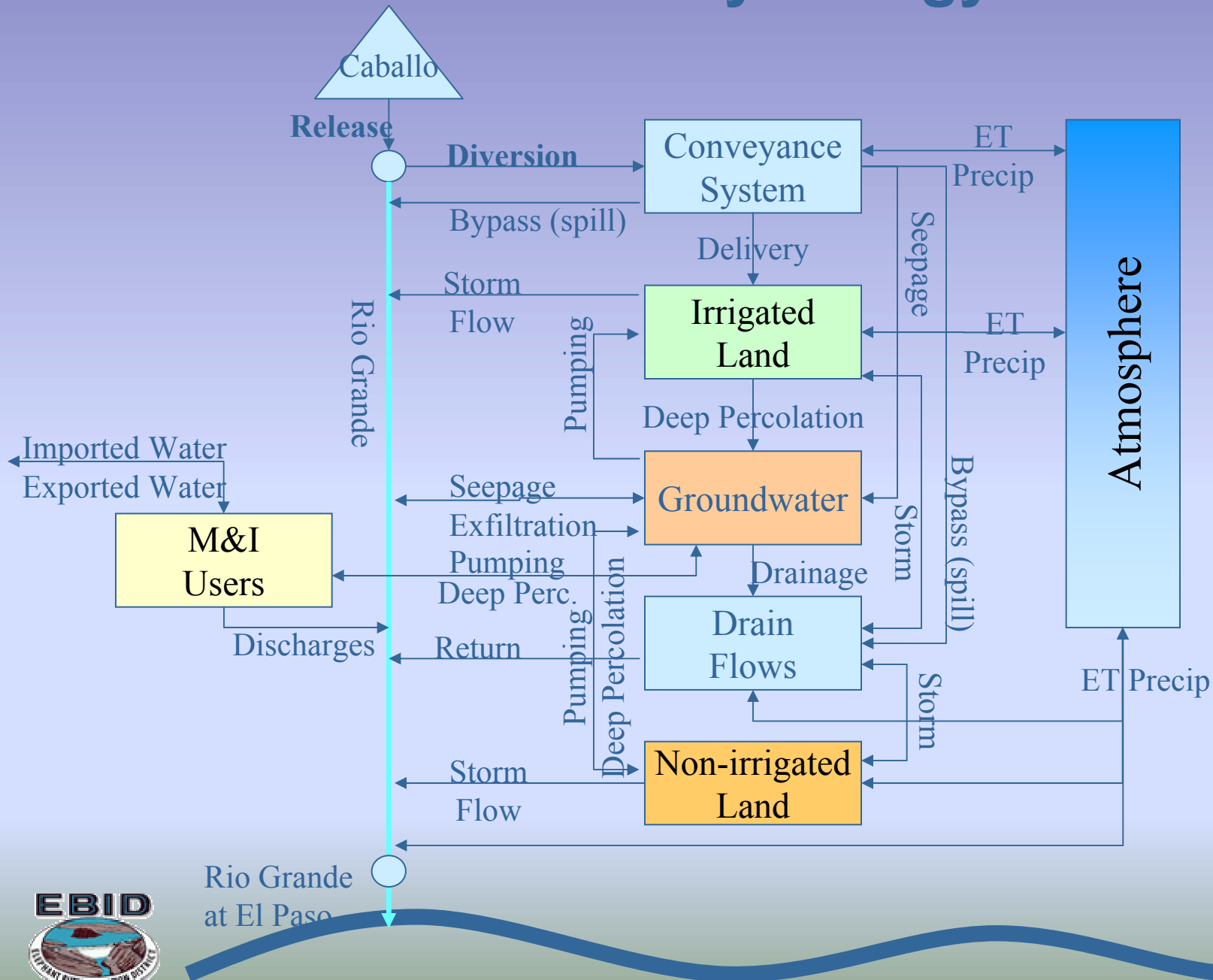
- Dr. Phil King  
Engineering Consultant  
NMSU CE Professor

# District Objectives

- Maximize beneficial use of Project Water by EBID constituents subject to delivery obligations to downstream users
- Provide for delivery of Project Water to Mexico under Convention of 1906
- Maintain 57/43 equity in Project Water between EBID and EPCWID
- Base operating agreement on historical equities and sound hydrology
- Allow for conjunctive use of surface and ground water

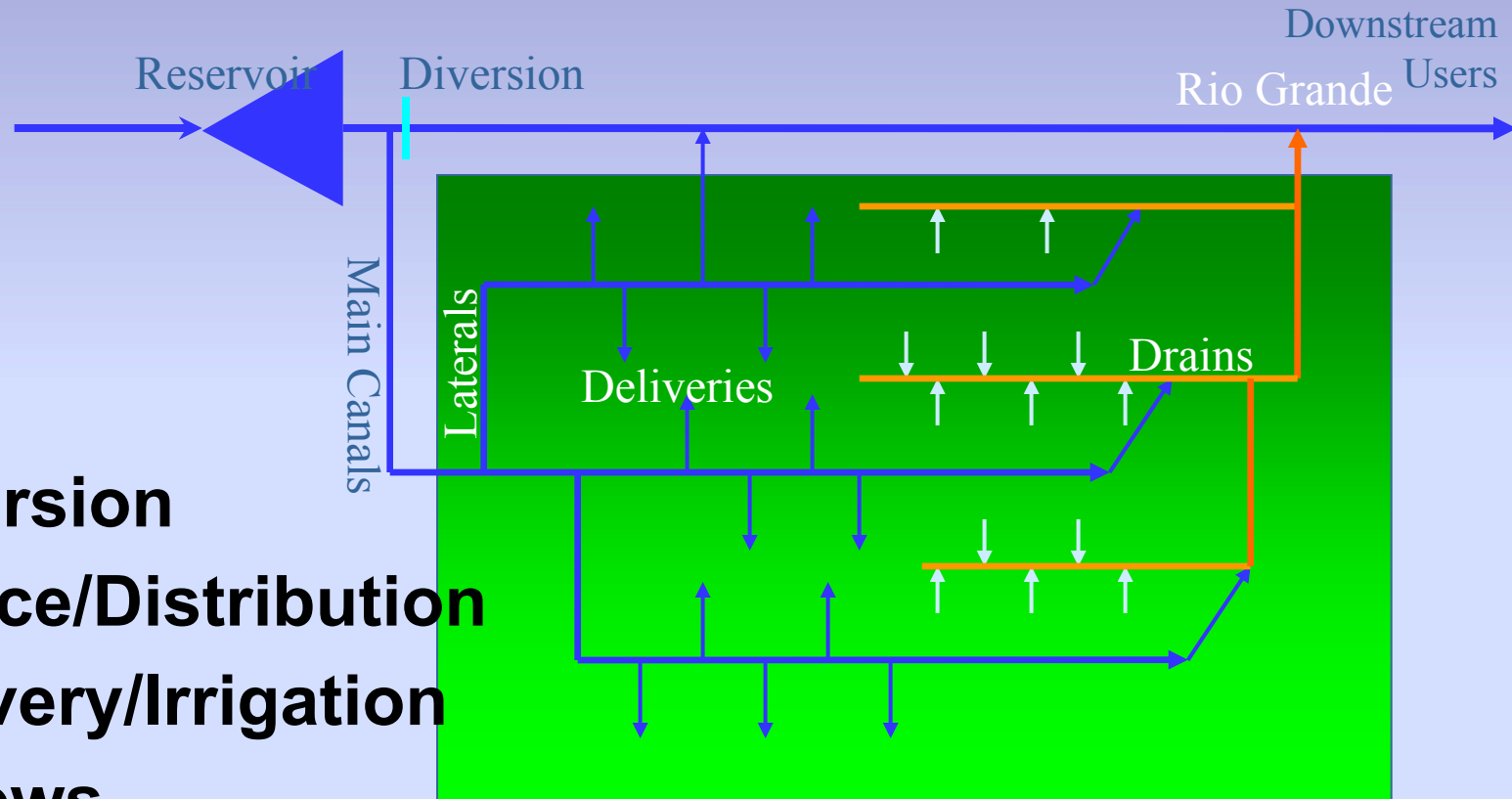


# District Hydrology



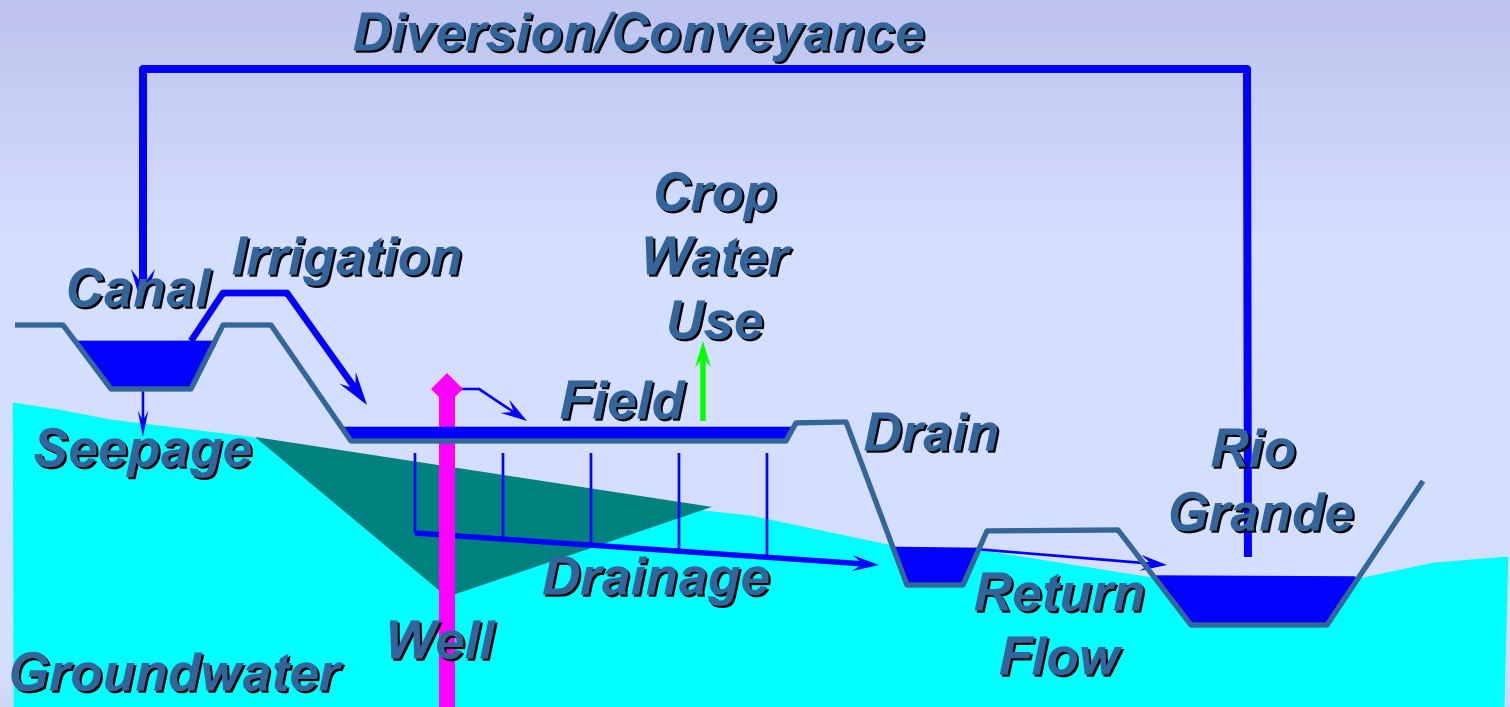


# Irrigation Hydrologic Cycle: Plan View



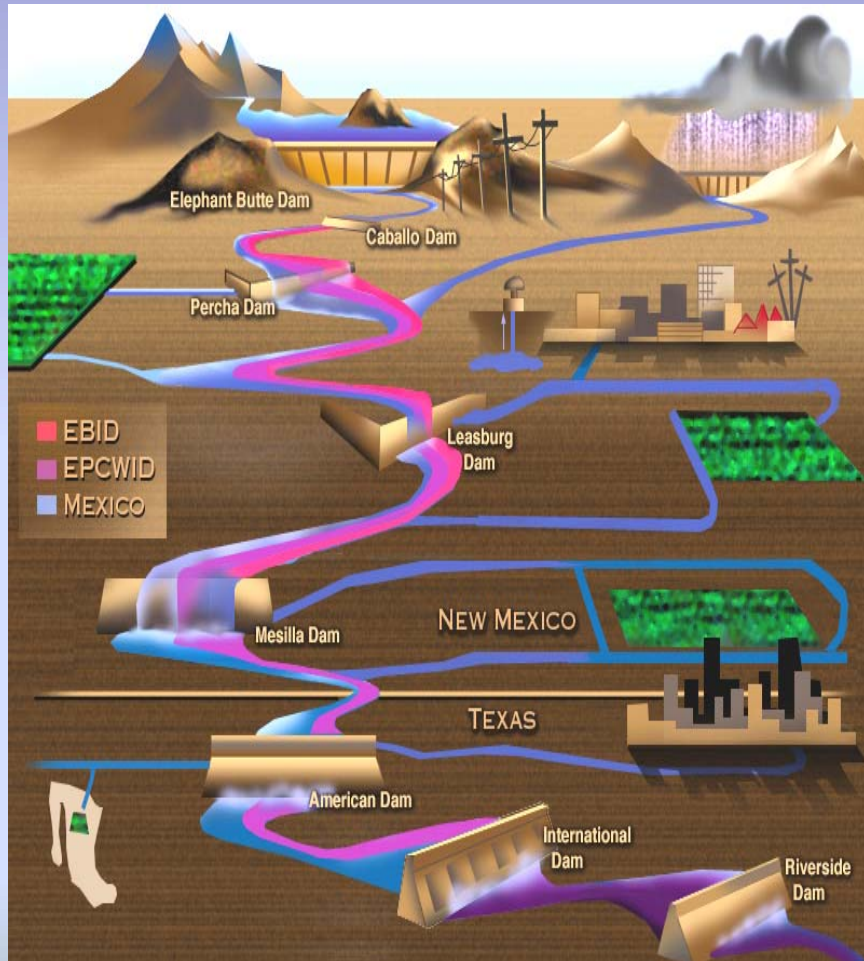
**River/Diversion**  
**Conveyance/Distribution**  
**Farm Delivery/Irrigation**  
**Return Flows**

# Irrigation Hydrologic Cycle: Profile



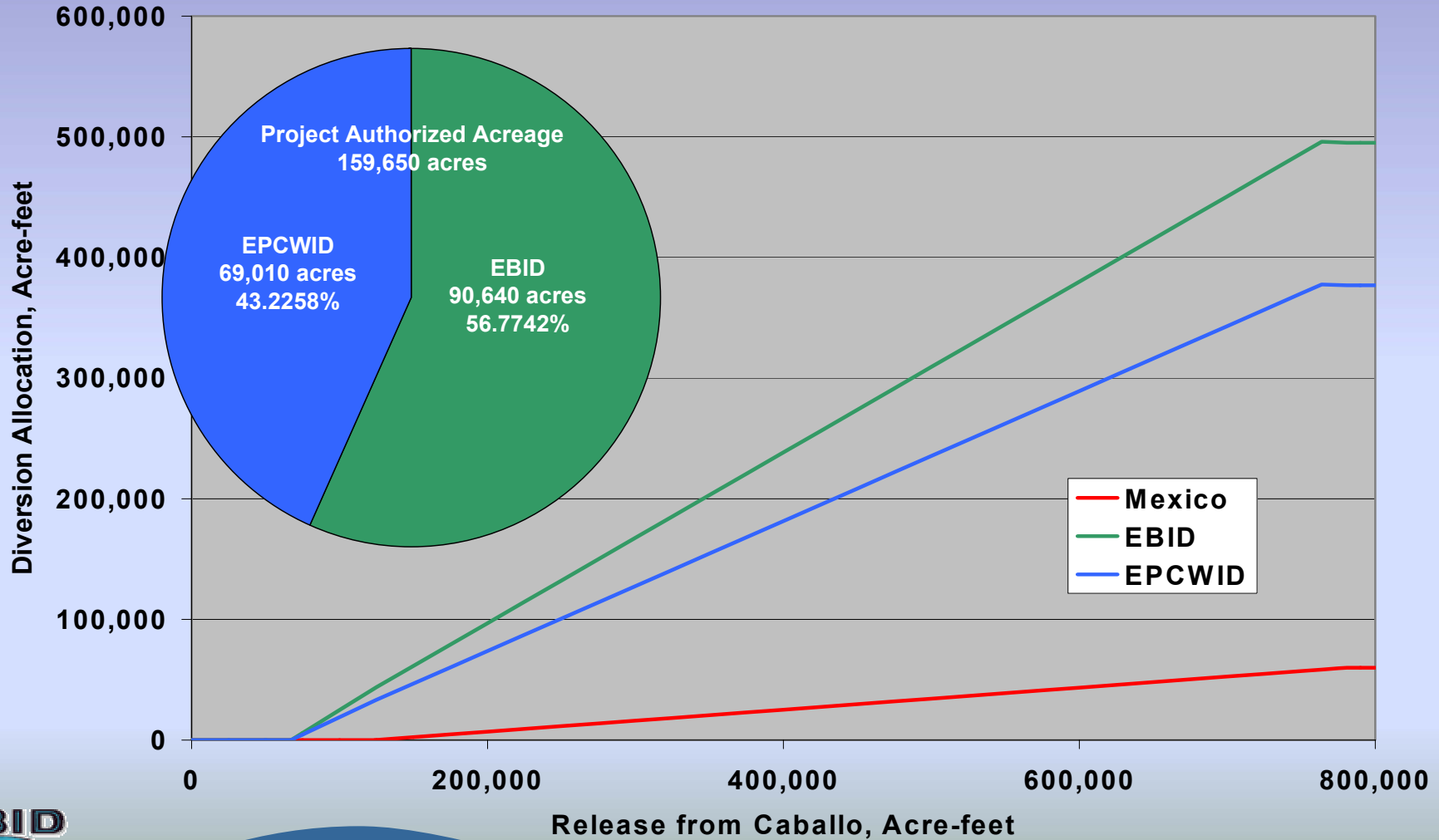
# Allocation of Project Water

- Release from Caballo Dam based on available water in storage
- Diversion from Rio Grande
  - ◆ Mexico allocation based on D1 (?)
  - ◆ Estimate of total diversion from D2
  - ◆ Remainder (total – Mexico) split between EBID and EPCWID 57%/43%

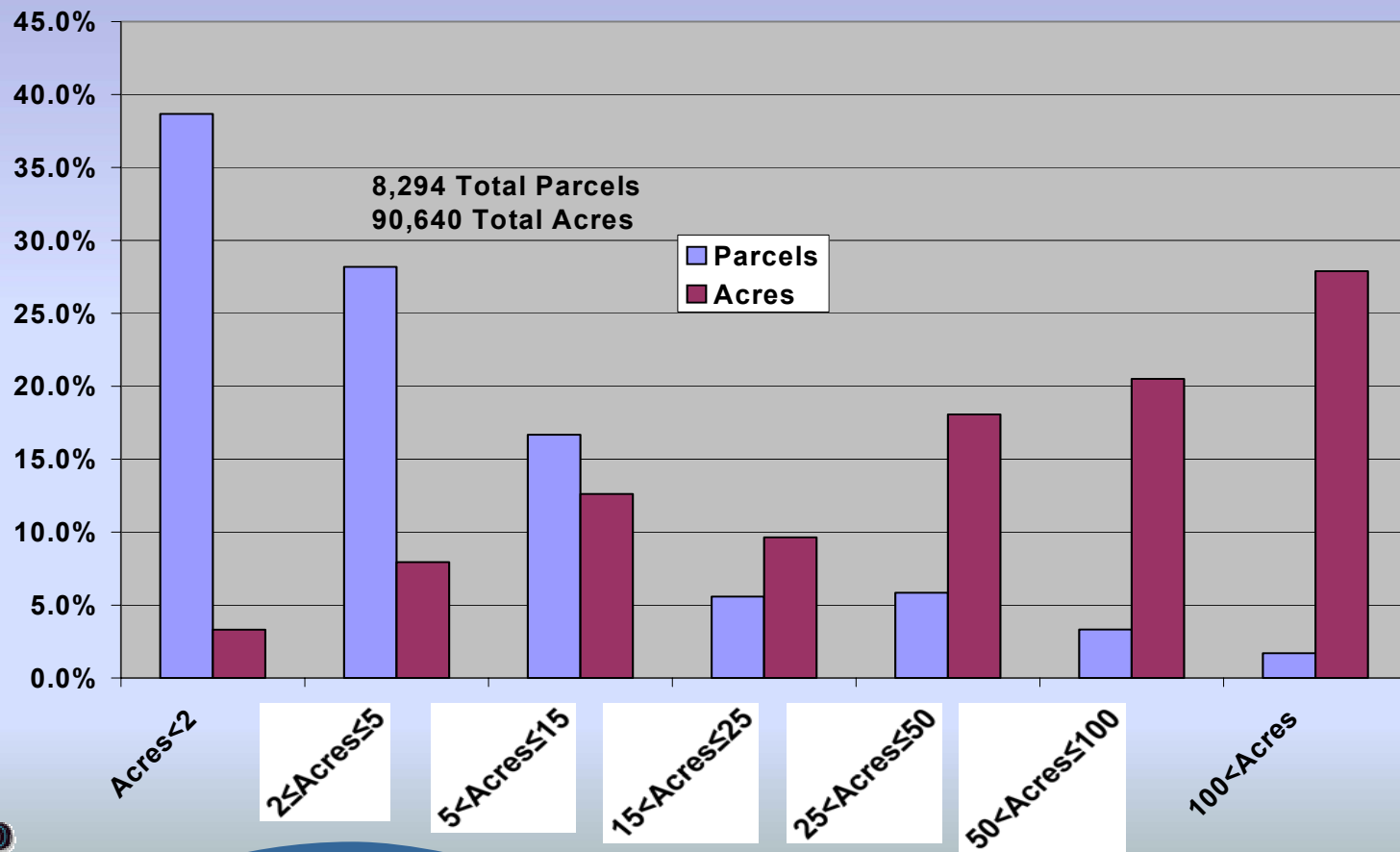




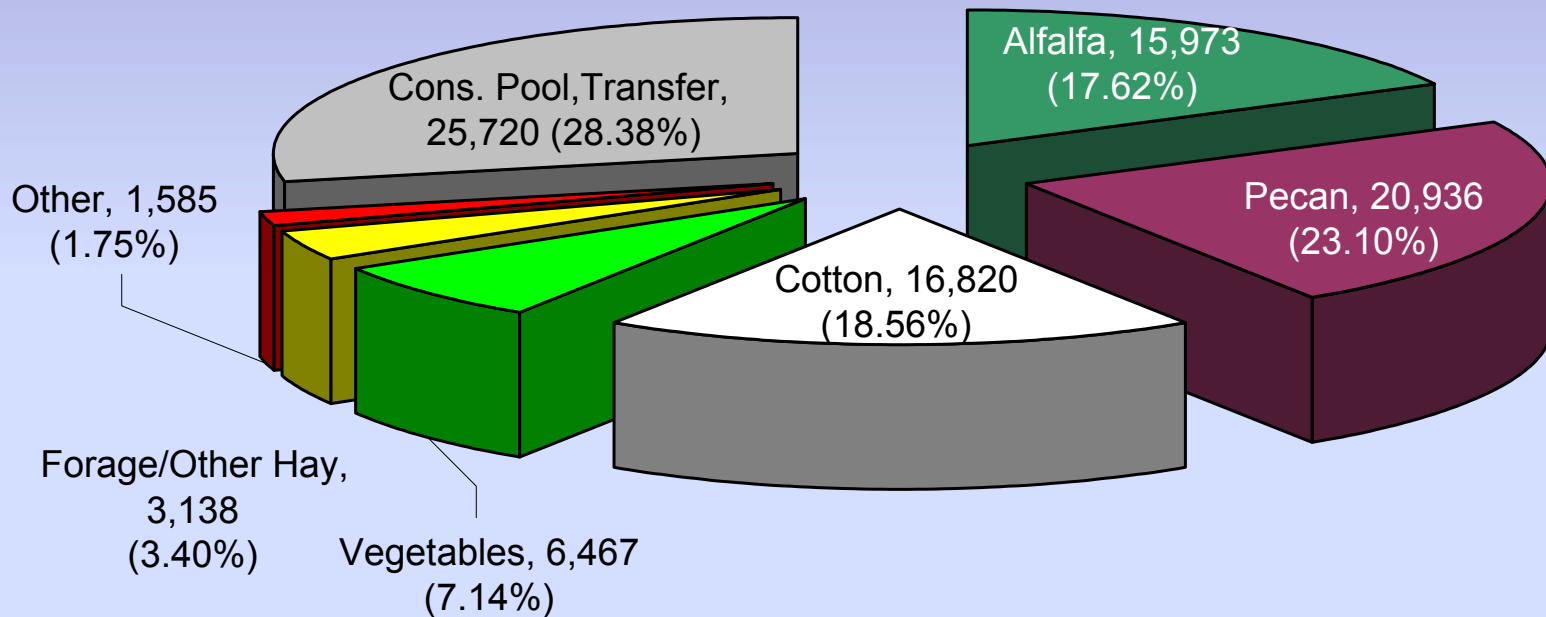
# Project Water Allocation



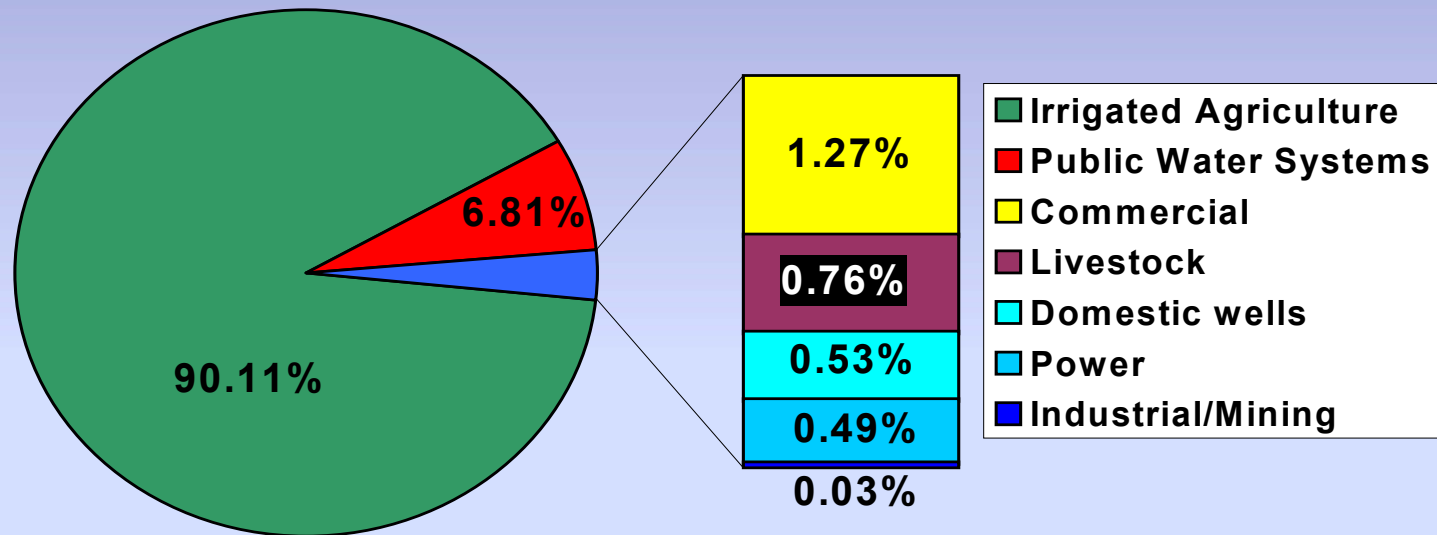
# Parcel Size Distribution in EBID



# 2003 Crop Mix

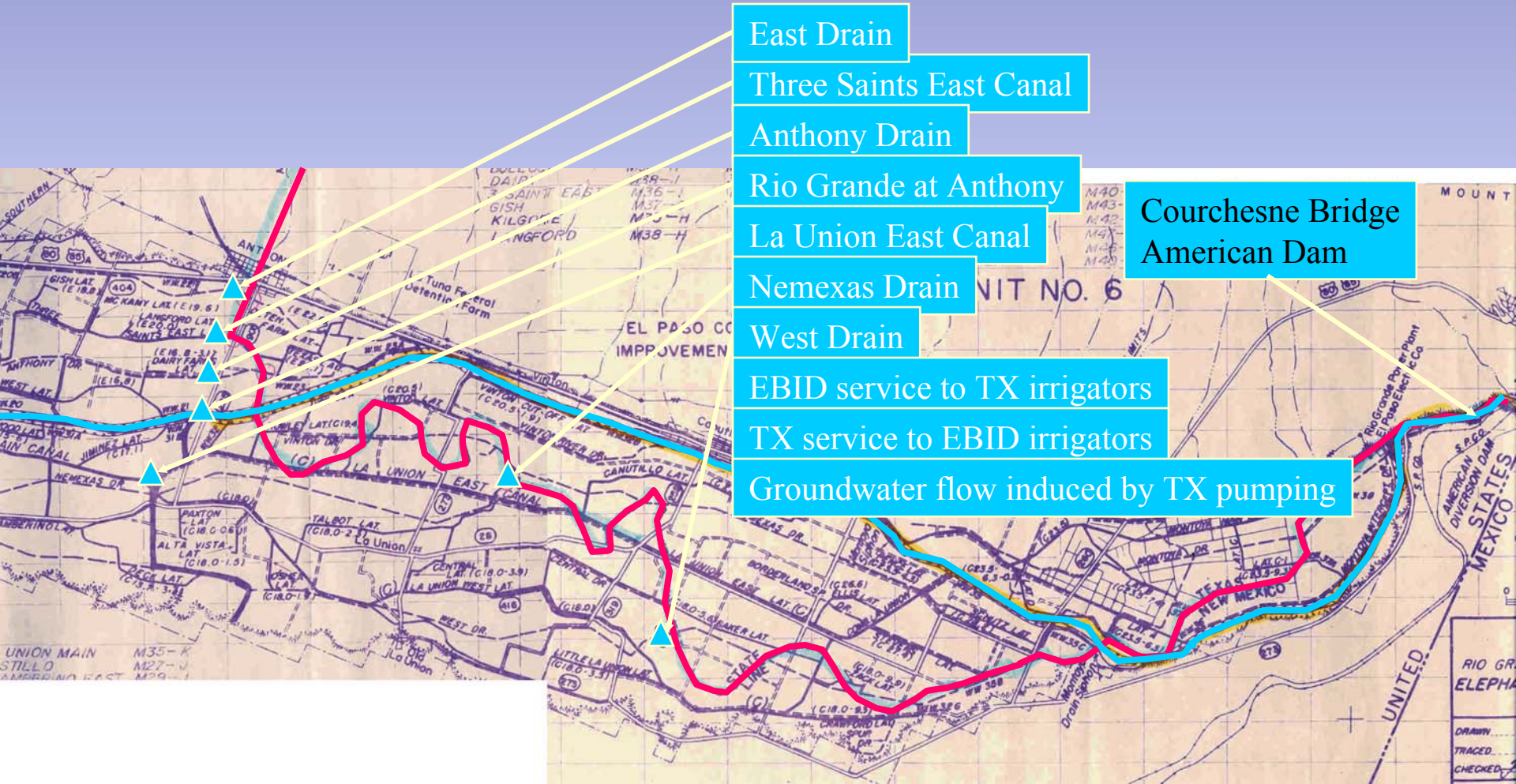


# Water Demand in LRG Planning Area



- Irrigated agriculture by far the largest, all of Rio Grande diversion in LRG Planning Area
- No M&I use of surface water (yet)

# How Water Gets to Texas



EBID





# Current Allocation and Allotment



## ■ Allocation:

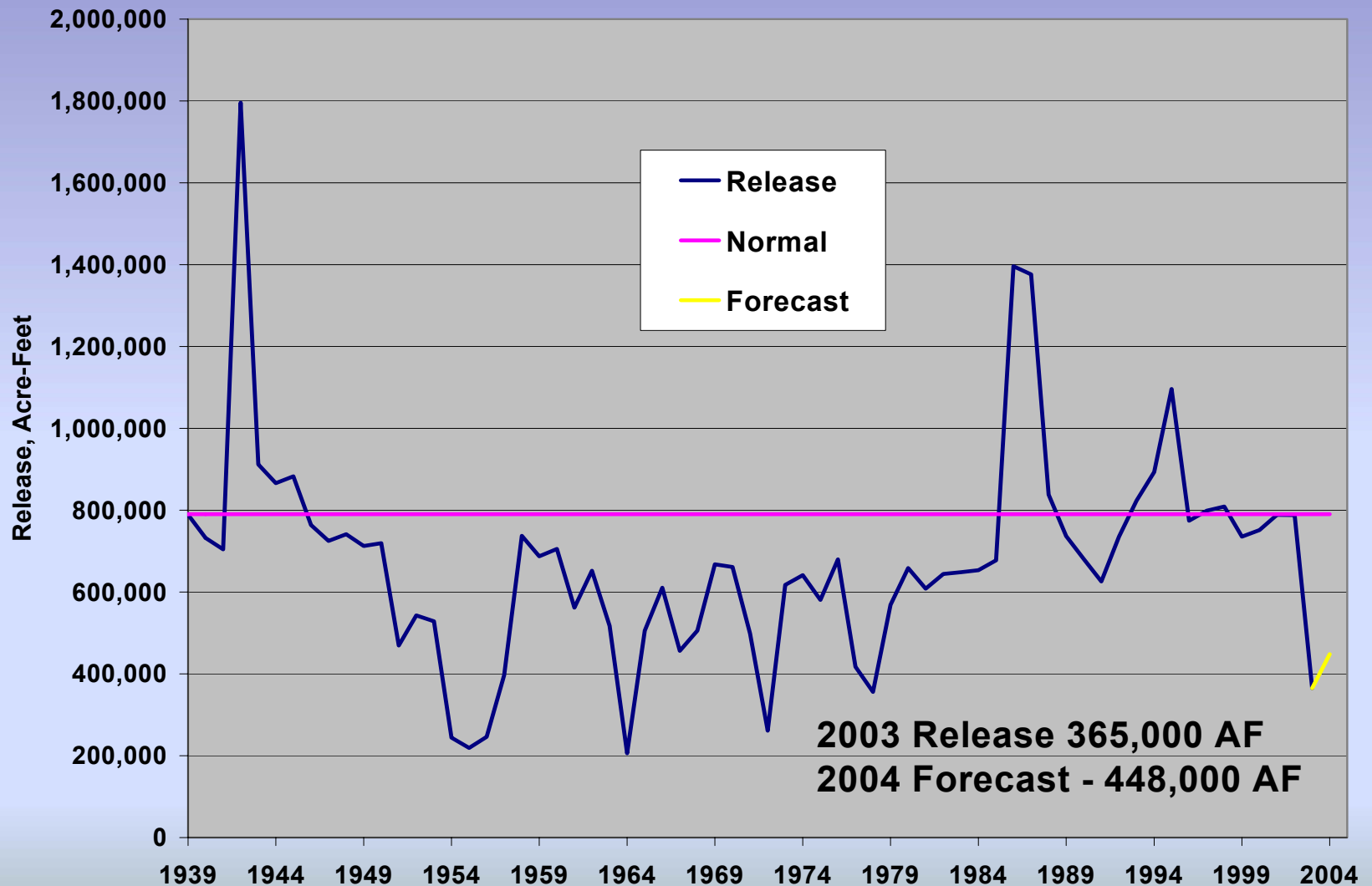
- ◆ Mexico – 18,600 AF
- ◆ EBID – 147,487 AF
- ◆ EPCWID – 112,292 AF
- ◆ Total – 278,379 AF

## ■ Allotment:

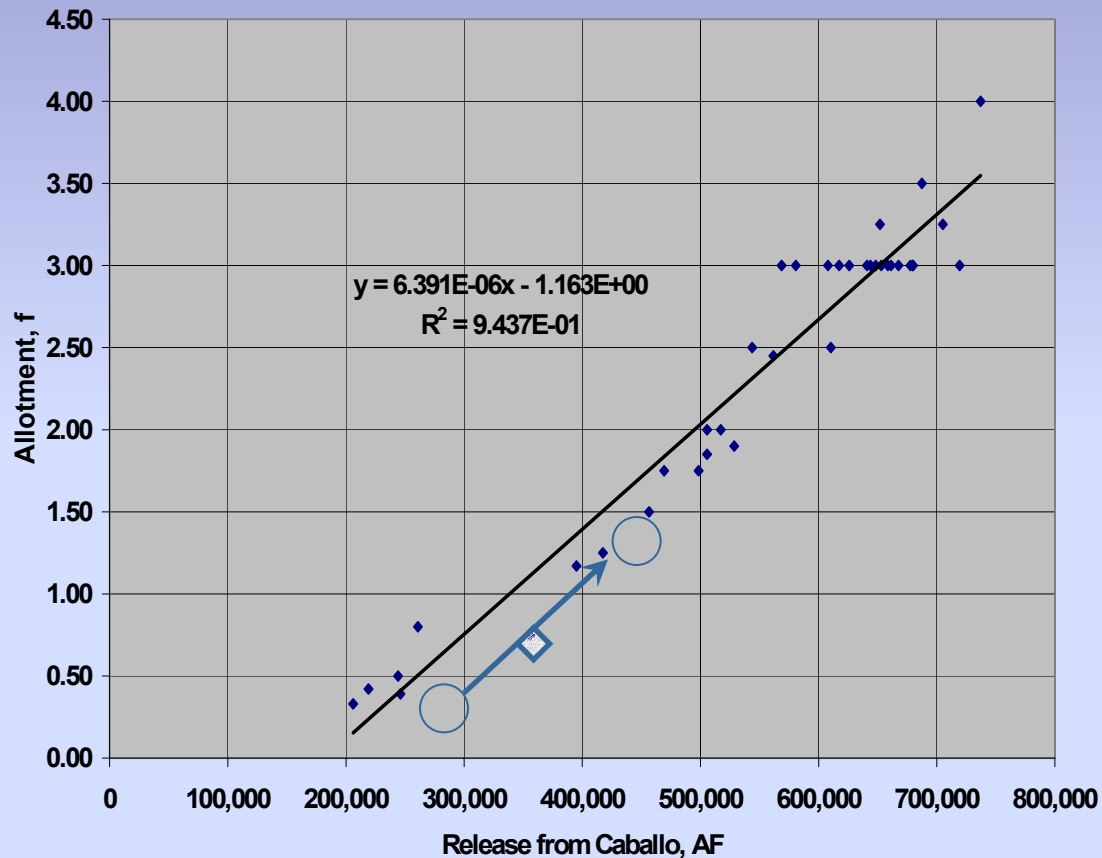
- ◆ Currently 4 inches
- ◆ Will be reviewed in May 2004 Board Meeting



# Release Outlook



# Allotment Outlook



Allotment, in	Required Release, AF
36	650,000
30	570,000
24	490,000
18	420,000
12	340,000
6	260,000

Forecast for 2004 Season: 13 – 16 inches





# Surface Water Management and Monitoring

- Henry Magallanez  
District Engineer

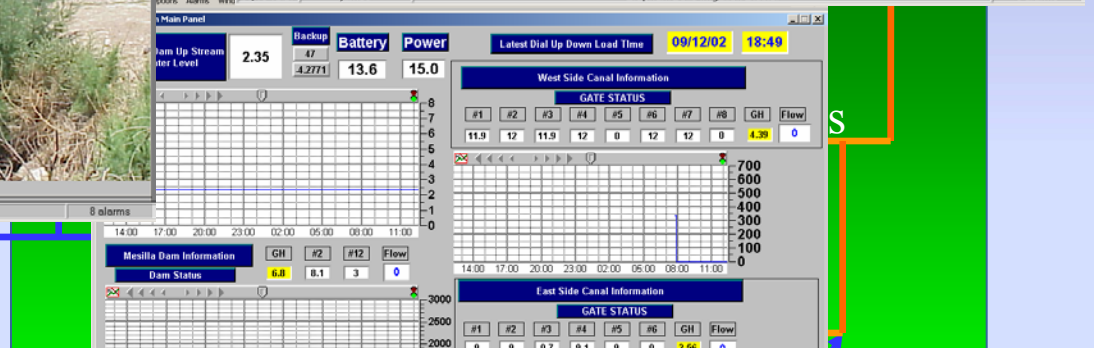
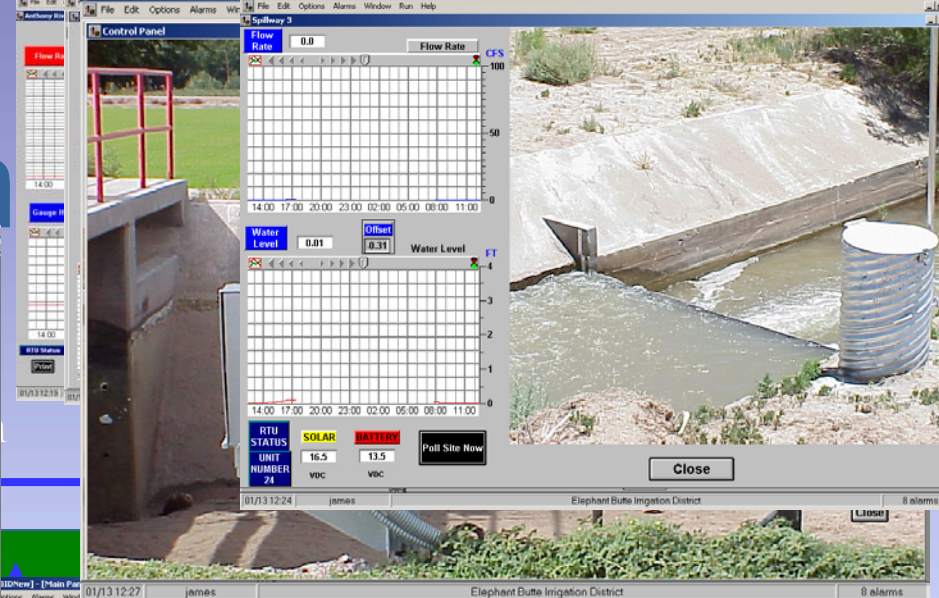
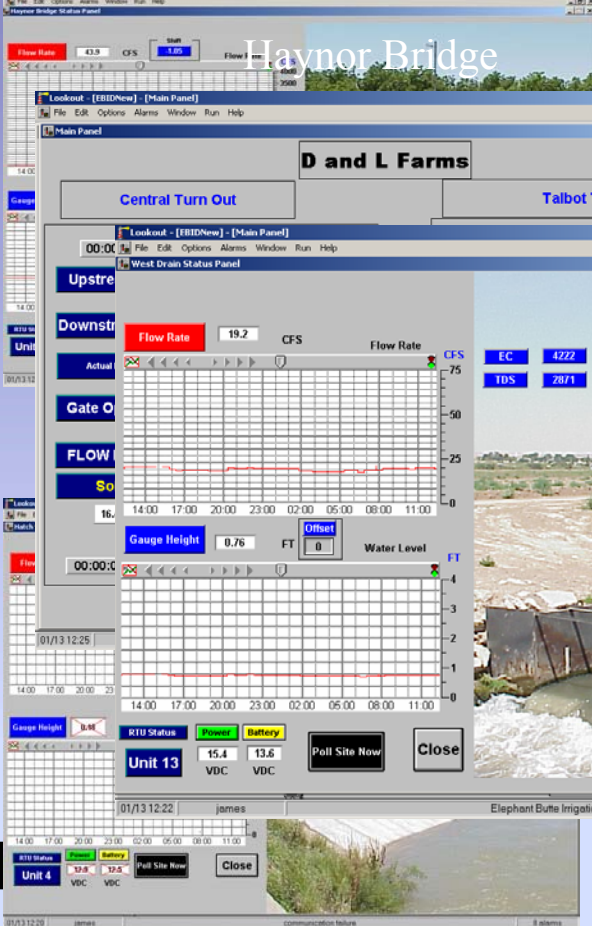


*Irrigating Yesterday*  
*Irrigating Today*





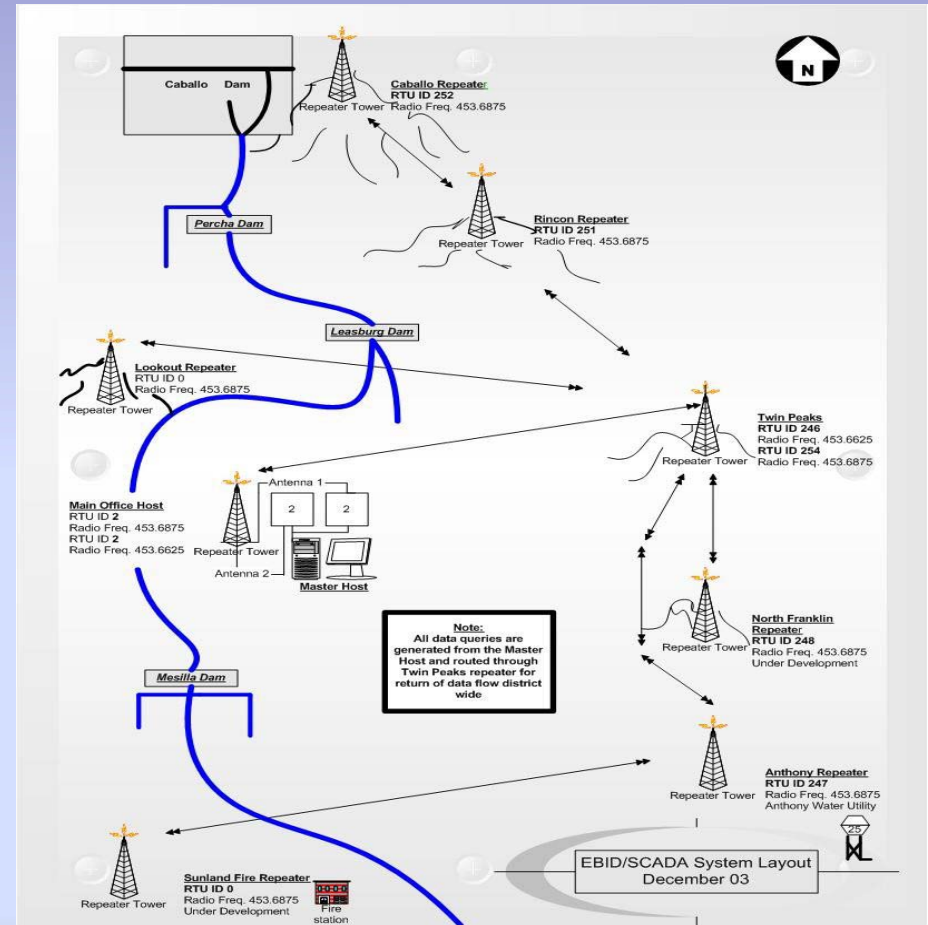
# Haynor Bridge



Conveyance/Distribution  
Farm Delivery/Irrigation  
Return Flows

# EFAS: EBID Flow Acquisition System

- Sites are monitored with sensors connected to radio telemetry units
- Over 100 sites currently monitored
- Will expand to approximately 500 sites within three years
- Real-time data is gathered at sites every 30 minutes and posted to the EBID website for review
- Strategic locations maximize ability to collect valuable data



# Groundwater Management and Monitoring



- The use of telemetry has allow the District to monitor and gather field data thus building a comprehensive database.
- Monitoring of farm irrigation wells
- Monitoring of Contract irrigation wells
- Instrumentation of shallow and deep ground water monitoring wells



# Conjunctive Use

- Joint management of surface and ground water
- Surface water use in full supply, providing recharge to groundwater system
  - ◆ Deep percolation from irrigation
  - ◆ Seepage from canals
- Groundwater use in drought to supplement reduced water supply



# Deep Well Monitoring Site



Lookout - [EBIDNew] - [Main Panel]

File Edit Options Alarms Window Run Help

All Site Status Panel

### EBID EFAS All Sites Daily Flow Report

Location	Water Level	Flow
<b>River Stations</b>		
Caballo Dam	4147.02	35.9
Haynes Bridge	2.92	66.0
Leansburg Cable	0.00	36.7
Picacho Bridge	2.61	58.5
Anthony River	1.16	127.5
Mesilla Dam	2.31	0
Rodriguez/Mesilla Dam	5.14	45
<b>Drains</b>		
Del Rio Drain	0.41	7.5
La Mesa Drain	0.00	0.0
East Drain	0.38	6.6
Anthony Drain	0.00	0.0
New Mexico Drain	0.00	0.0
West Drain	0.25	3.3
<b>Headings</b>		
Hatch Siphon	0.01	0.3
Unit 1st Check	-1.63	-1.5
Three Saints East	0.00	0.3
Unit 3A Heading	0.45	226.9
Picacho Check		1
Unit 2B Heading		1
La Union Divide		
<input type="checkbox"/> LUE 1 <input type="checkbox"/> LUW 52.3 <input type="button" value="Poll"/>		
<input type="button" value="Repeater Status"/> <input type="button" value="Irrigation Well"/>		
<input type="button" value="Kerr Lateral"/>		

Location	Water Level	Flow
<b>Spillways</b>		
Spillway 5	0.00	0.0
Spillway 16	0.08	1.7
Spillway 3	0.00	0.0
Spillway 8	0.00	0.0
Spillway 18	0.00	0.0
Spillway 26	0.00	0.0
Spillway 30	0.01	0.4
Spillway 31B	0.00	0.0
Spillway 25	0.00	0.0
Spillway 21S	0.00	0.0
Spillway 20S	0.00	0.0
Spillway 100	0.00	0
<b>Farms</b>		
<div> <div>Central</div> <div>Talbot</div> </div>		
<div> <div>0 and L Farms</div> <div>8.8 Poll</div> <div>8.8 Poll</div> </div>		
<div> <div>Triple O Farms</div> <div>9.88 Poll</div> <div>14.8 Poll</div> <div>5.1 Poll</div> <div>4.3 Poll</div> </div>		
<div> <div>1081</div> </div>		

**Poll All Sites**

Time left until 30 minute poll cycle: 03:26

Time left until on the hour poll cycle: 33:26

516 alarms

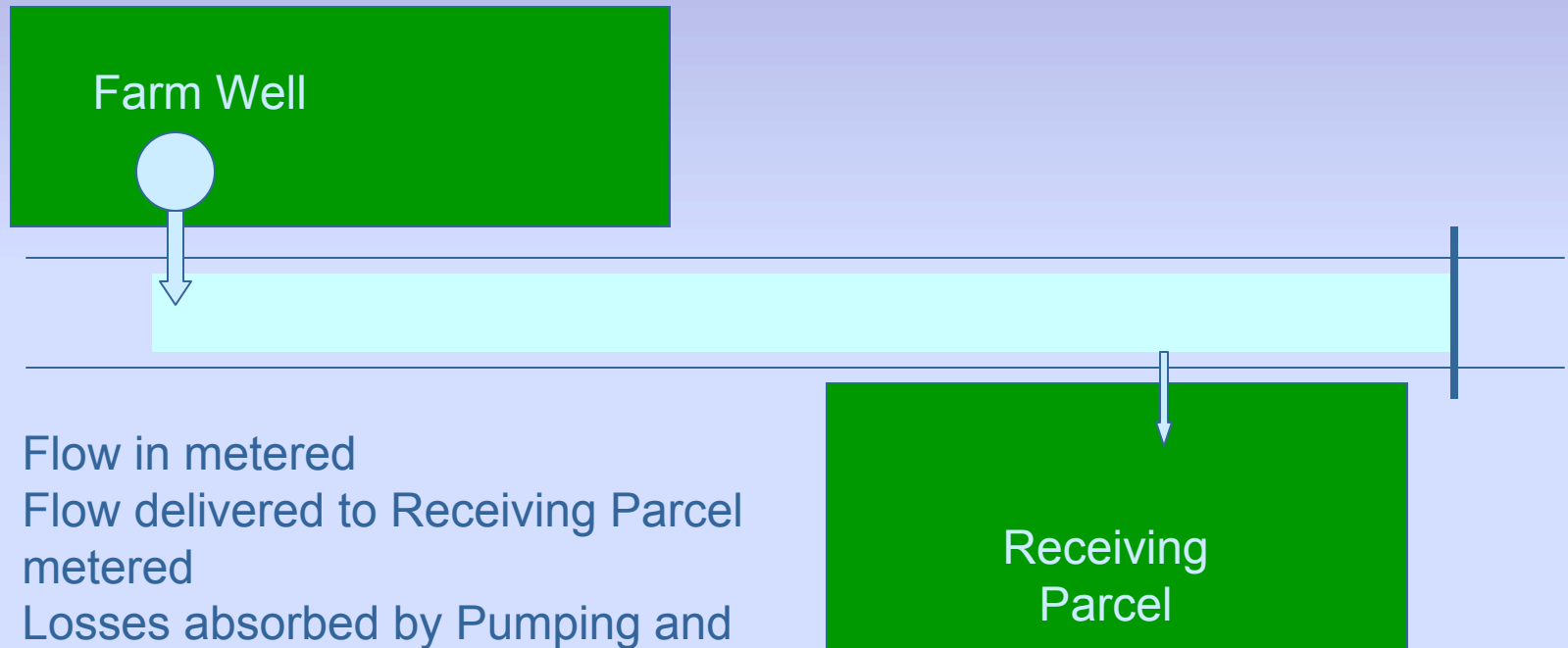
04/26 08:31 Administrator Elephant Butte Irrigation District

Lookout - [EBIDNew]





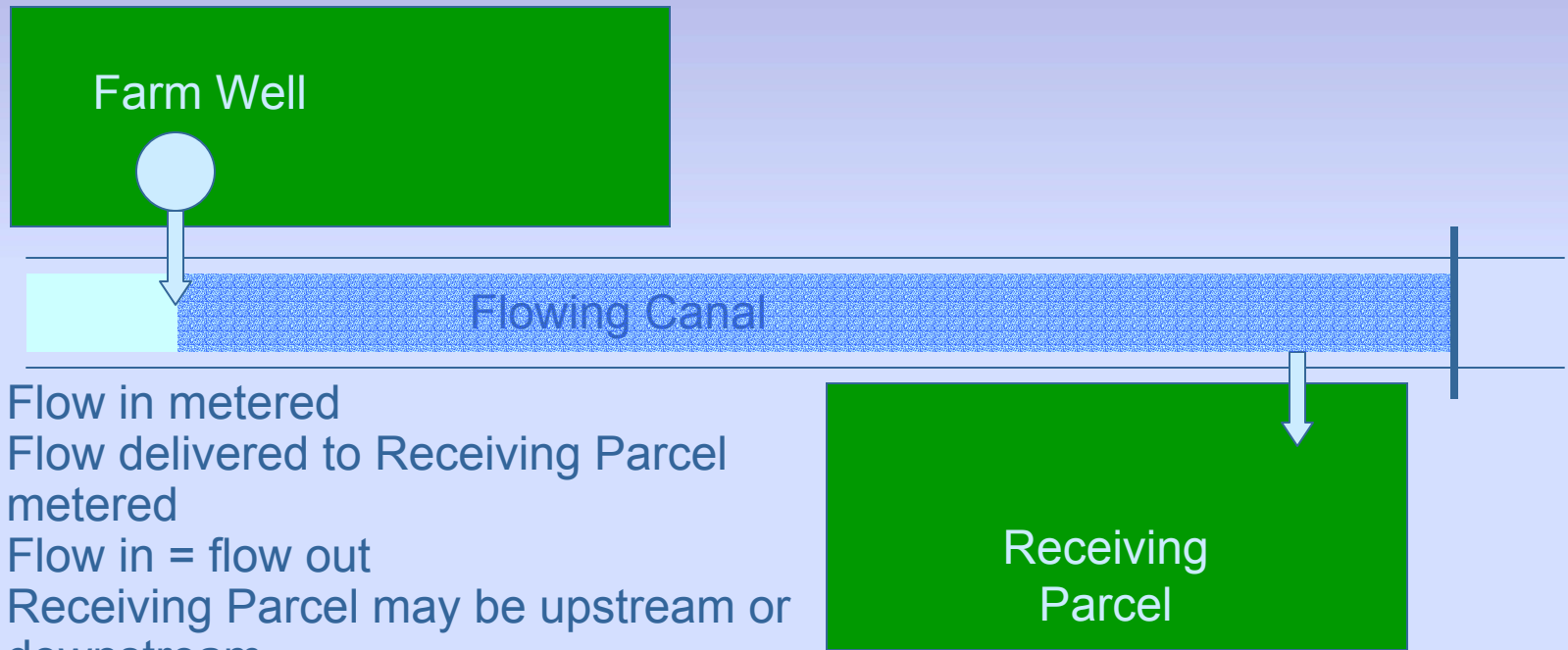
# Groundwater Conveyance



- Flow in metered
  - Flow delivered to Receiving Parcel metered
  - Losses absorbed by Pumping and Receiving parties
  - Water quality limitations
- Scheduled with District



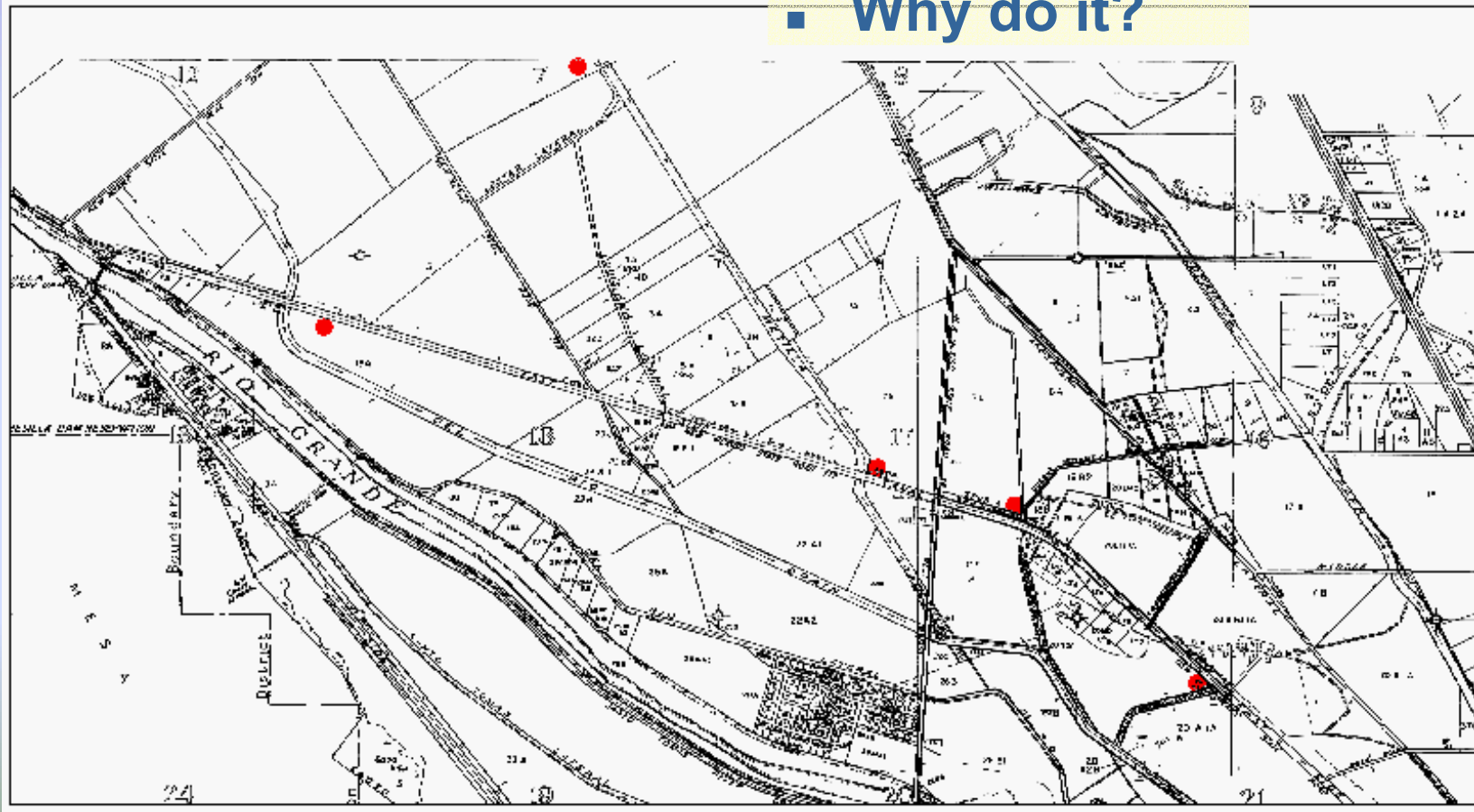
# Groundwater Exchange



- Flow in metered
- Flow delivered to Receiving Parcel metered
- Flow in = flow out
- Receiving Parcel may be upstream or downstream
- Water quality limitations
- Scheduled with District

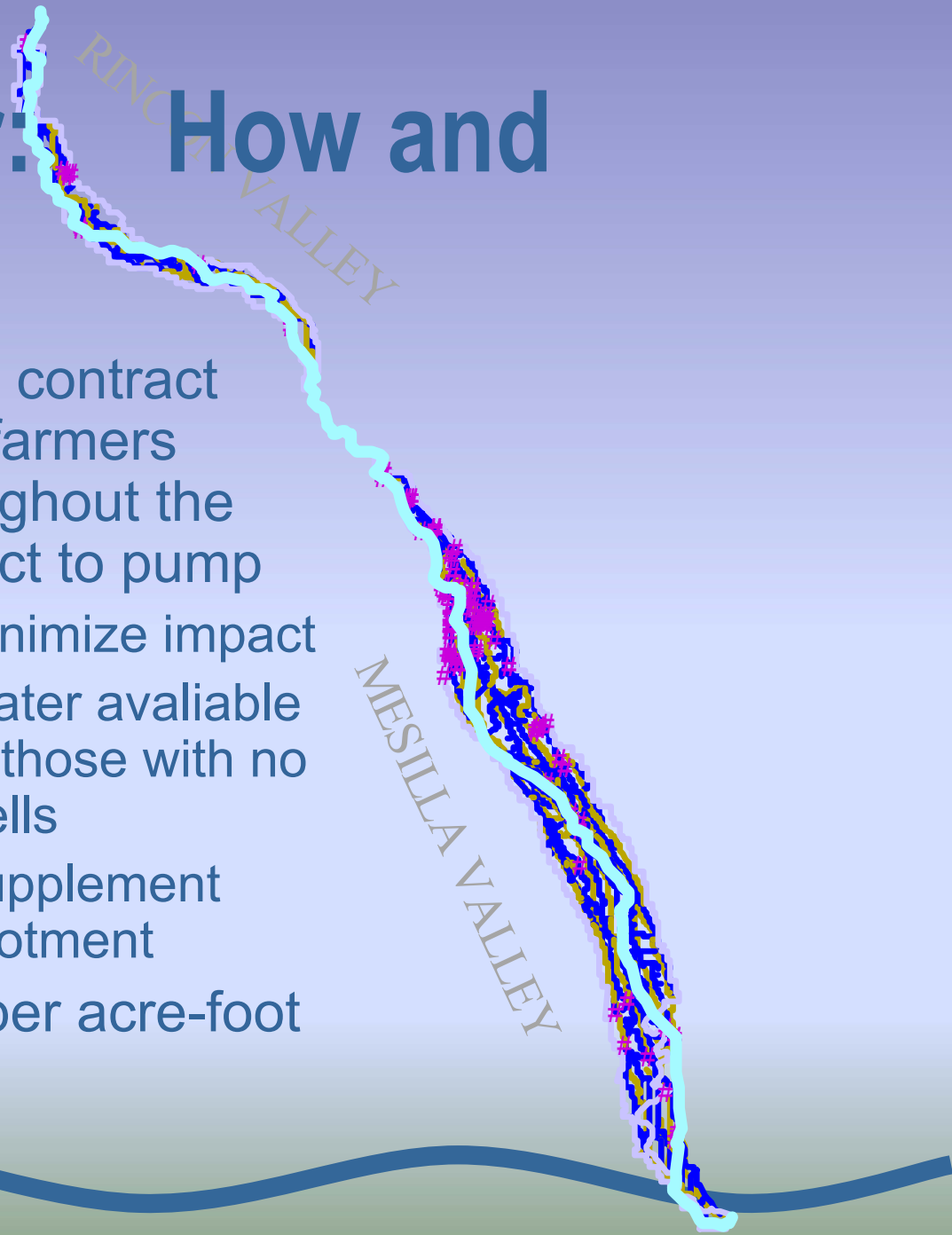
# Contract Water

- What is it ?
- How is it done?
- Why do it?



# Contract Water: How and Why

- EBID contract with farmers throughout the District to pump
  - ◆ Minimize impact
  - ◆ Water available to those with no wells
  - ◆ Supplement allotment
- \$50 per acre-foot





Take out

Land to be Irrigated  
No Well on property

Pump Location



Lookout - [EBIDNew] - [Main Panel]

File Edit Options Alarms Window Run Help

Control Panel

Stahman Cal Well

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
1.0	4.5	0.4	0.00
Irig Mins	Current CFS	Diff Head	Down Stream
59	5.6	2.4	2.78
Battery	Solar	YTD AcFt	Ups Raw
12.7	13.5	248.3	65233
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
44309	738.5		992

Tharp Picacho Well

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
12.70	4.53	4.84	0.15
Irig Mins	Current CFS	Diff Head	Down Stream
762	0	0.00	0.15
Battery	Solar	YTD AcFt	Ups Raw
13.7	18.0	73.31	55
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
11422	190.37		55

Faubion Well

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
0.0833333	4.19843	0.028914	0.00
Irig Mins	Current CFS	Diff Head	Down Stream
5	0	0	0.06
Battery	Solar	YTD AcFt	Ups Raw
13.5	14.4	124.4	65507
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
15293	254.883		21

Gary Arnold Well

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
0	0	0	0.00
Irig Mins	Current CFS	Diff Head	Down Stream
0	0	0	0.00
Battery	Solar	YTD AcFt	Ups Raw
13.2	14.0	0	64720
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
0	0		64720

Provencio Well

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
1.23	1.63	0.16	0.20
Irig Mins	Current CFS	Diff Head	Down Stream
74	1.55	0.18	0.00
Battery	Solar	YTD AcFt	Ups Raw
0.0	0.0	53.66	70
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
17574	292.90		65534

James Salopek Well

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
51.13	6.20	26.72	0.25
Irig Mins	Current CFS	Diff Head	Down Stream
3068	6.10	2.8224	3.11
Battery	Solar	YTD AcFt	Ups Raw
13.7	15.6	140.76	91
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
23045	384.08		1112

Joe Nelson Wells

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
0.4	1.29	0.04	0.00
Irig Mins	Current CFS	Diff Head	Down Stream
25	0.0	0.00	0.01
Battery	Solar	YTD AcFt	Ups Raw
13.7	17.8	51.05	0
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
9743	162.4		3

Esslinger Wells

Station 75+15

Poll Site Now

IrigTime Hrs	Irig Avg Cfs	Irig AcFt	Up Stream
1.47	0.34	0.34	0.13
Irig Mins	Current CFS	Diff Head	Down Stream
88	1.33	0.13	0.00
Battery	Solar	YTD AcFt	Ups Raw
13.5	14.5	8.96	48
Ytd Mins	YTD Time Hrs	Graph	Dwn Raw
2853	47.55		0

Print

33:45 43:45 03:45 13:45

South Wells Panel

Close

04/28 10:31 Administrator

Elephant Butte Irrigation District

66 alarms

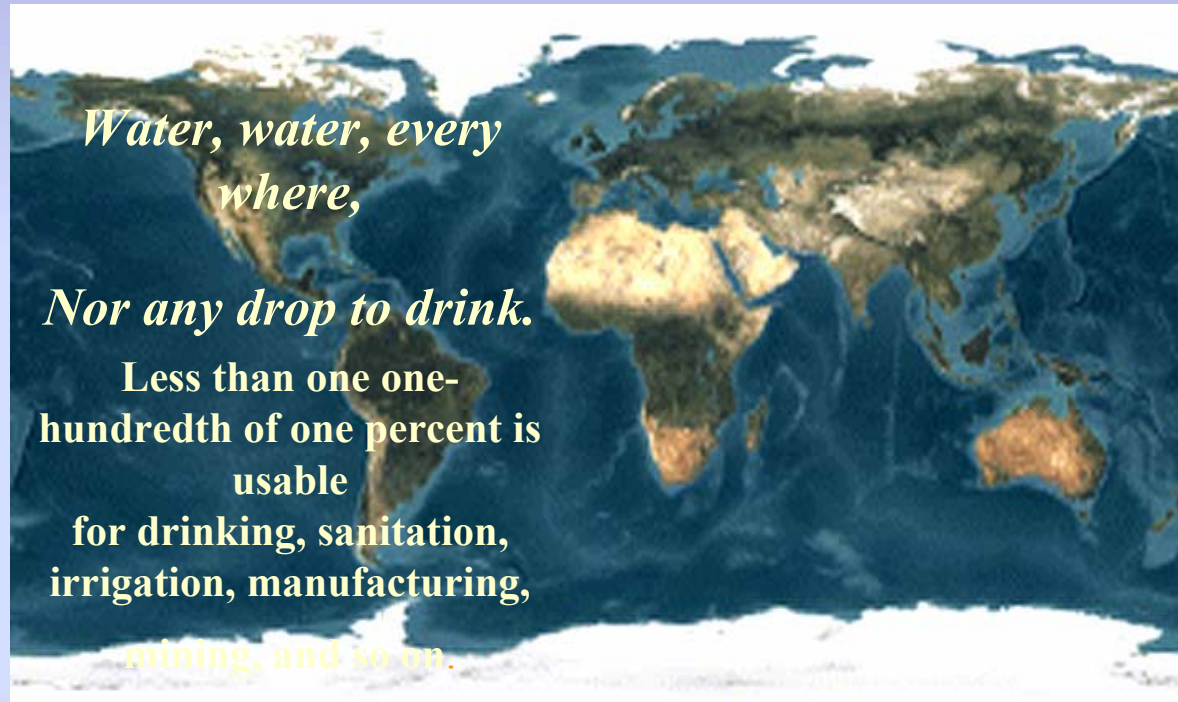
Start Outlook - [EBIDNew] ... untitled - Paint

10:31 AM



# Water Management and Monitoring through GIS Applications

- Valerie Beversdorf,  
Resource Specialist



# Water Management through Web Interaction



- Ron Mears  
Information Systems Director





# M&I use of Ag. Water from an Irrigation District

- Steve Hernandez  
Attorney



- Special Water Users Associations
- Section 73-10-48 NMSA





# Special Water Users Association (SWUA)

- WHO: Interstate Stream Commission AND municipalities, counties, state universities, member-owned water systems, and public utilities as set forth in Section 72-1-9 NMSA.
- WHERE: Entity must physically supply water to lands within irrigation district boundaries (EBID & CID).
- HOW: Compliance with EBID SWUA policy AND Certification by the OSE.
- WHAT: Leasing of annual allotments of district water from members. SWUA gets consolidated billings for water charges even though not the owner. Use of water for SWTP or meeting interstate compact deliveries. Expedited hearing by the OSE for change of place and purpose of use.



# Legislative Progression for SWUA

- Problem: 10 year statutory restriction on leasing of water rights.
  - EBID and CLC work with legislature to amend leasing statute from 10 years to 40 years. City now uses a standard 40 year lease with an automatic 40 year renewal. By ordinance the city will pay \$3,000 an acre for EBID water rights on large tracts. Smaller tracts are prorated downward in price
- Problem: District can only send bills to landowners and cities and counties are forced to buy out farms for water rights leading to premature removal of farm land.
  - EBID & CLC work with legislature to create Municipal Water Users Association (MWUA). This streamlines leasing process and billing process to MWUA. CLC can now leave water in Agriculture until it needs it in a SWTP. In effect building a “bank account of water”.

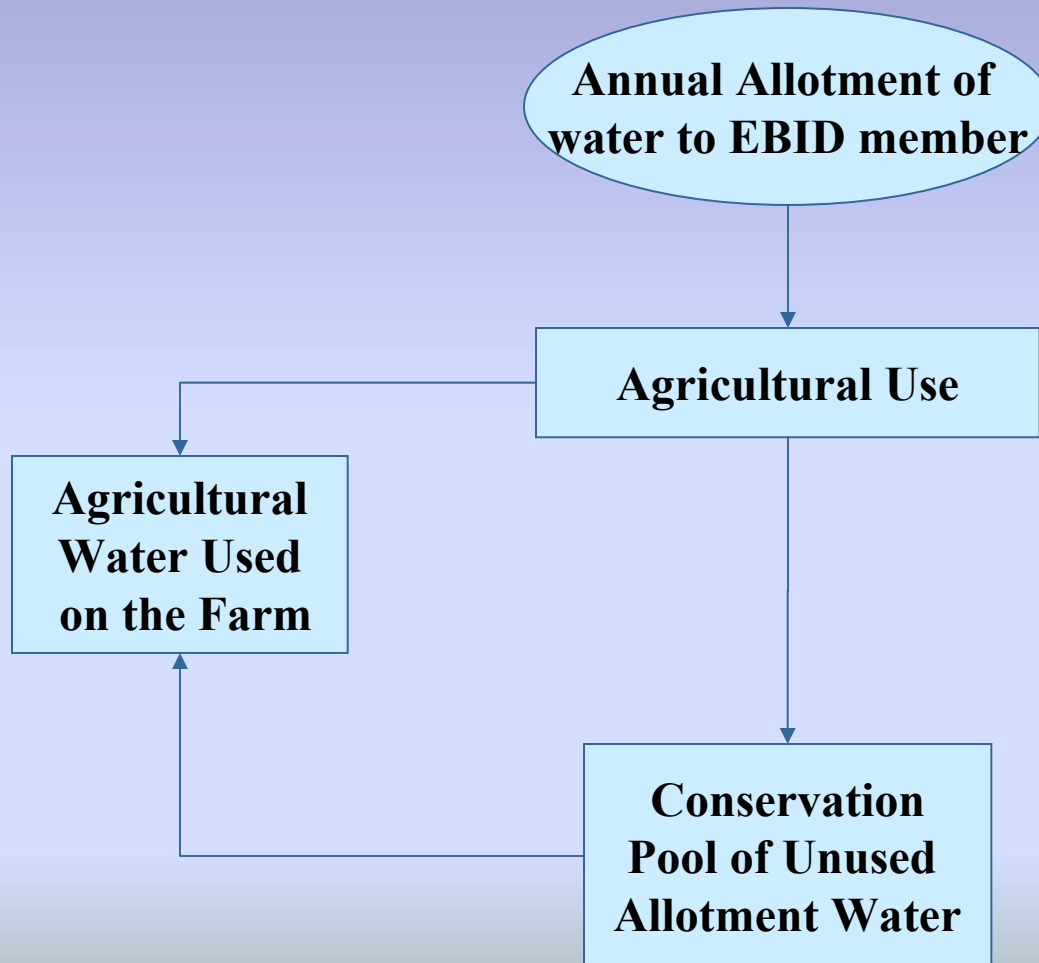


# Legislative Progression for SWUA

- Problem: MWUA still faced with cumbersome OSE transfer hearing when it wants to change place and purpose of use for every small parcel of water it acquires.
  - Expedited hearing process is set in place because all water can be measured and groundwater model can be used to calculate all hydrologic effects on transfer.
- Problem: ISC needs a mechanism that would allow it to lease water from EBID in order to make deliveries to Texas if necessary in the future.
  - ISC added to entities that may participate as an SWUA
- Problem: Some legislative analyst does not like the name of MWUA.
  - Change name to Special Water User Association.



# Existing System of Annual Water Transfers



# Conservation Pool

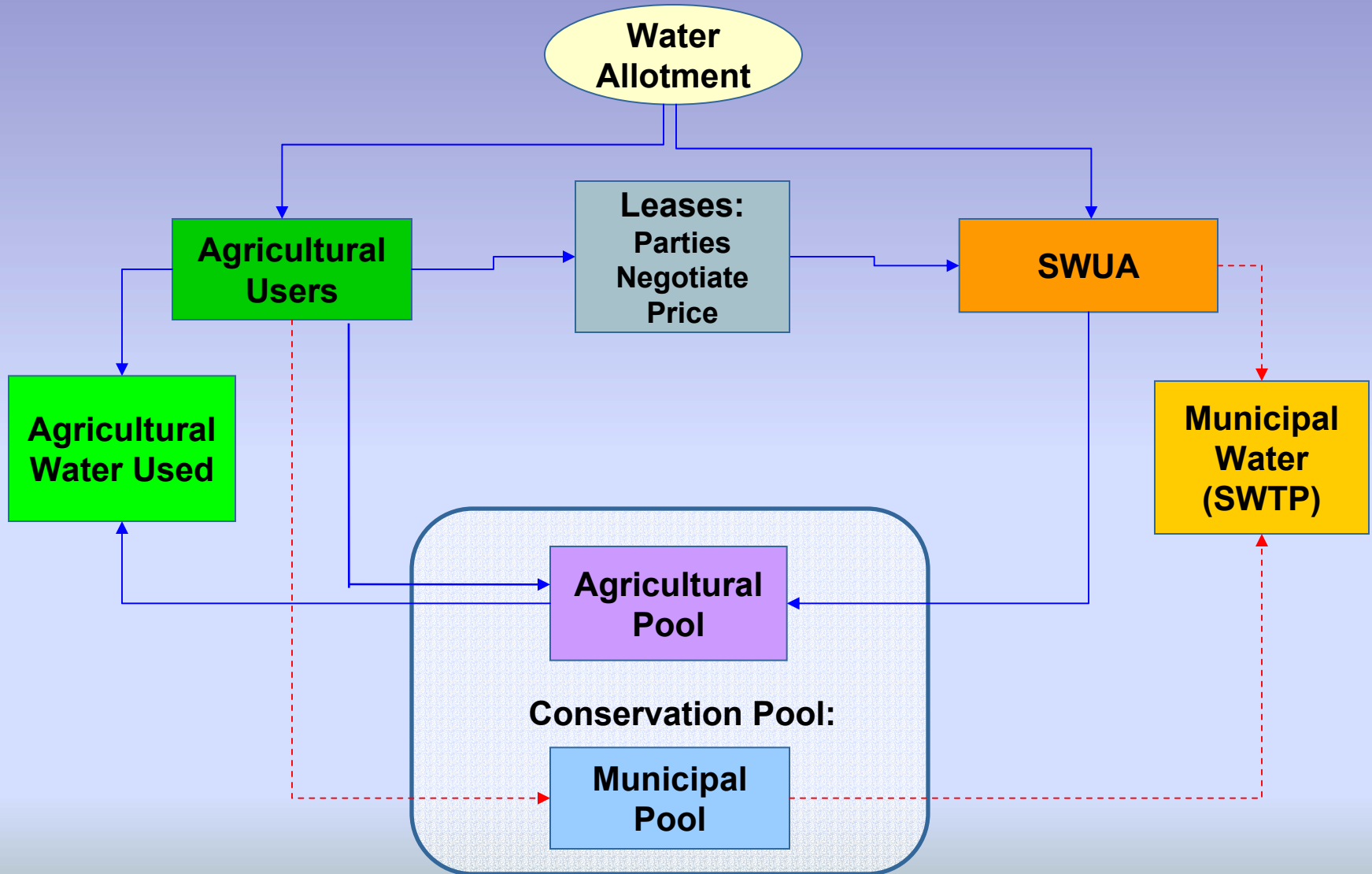
- Water automatically transferred to Conservation Pool after cutoff date set by EBID board
- Water can be purchased by other members
- Water is made available from a variety of sources:
  - Low Water-use Crops
  - Fallow Land
  - Non-payment
  - Conservation Practices

**District  
Surface Water  
Allotment based on  
90,640  
Water-righted  
acres**

**Conservation  
Pool**



# Structure for Transfers of Water to Special Water Users Associations





# Limitations on SWUA by EBID

- EBID water must be used by SWUA to provide water to areas within District boundaries.
- SWUA may acquire EBID rights w/i its service area but get board approval when it acquires outside its area. Conflict between SWUA's!
- Delivery point for accepting EBID water must be within EBID boundaries.

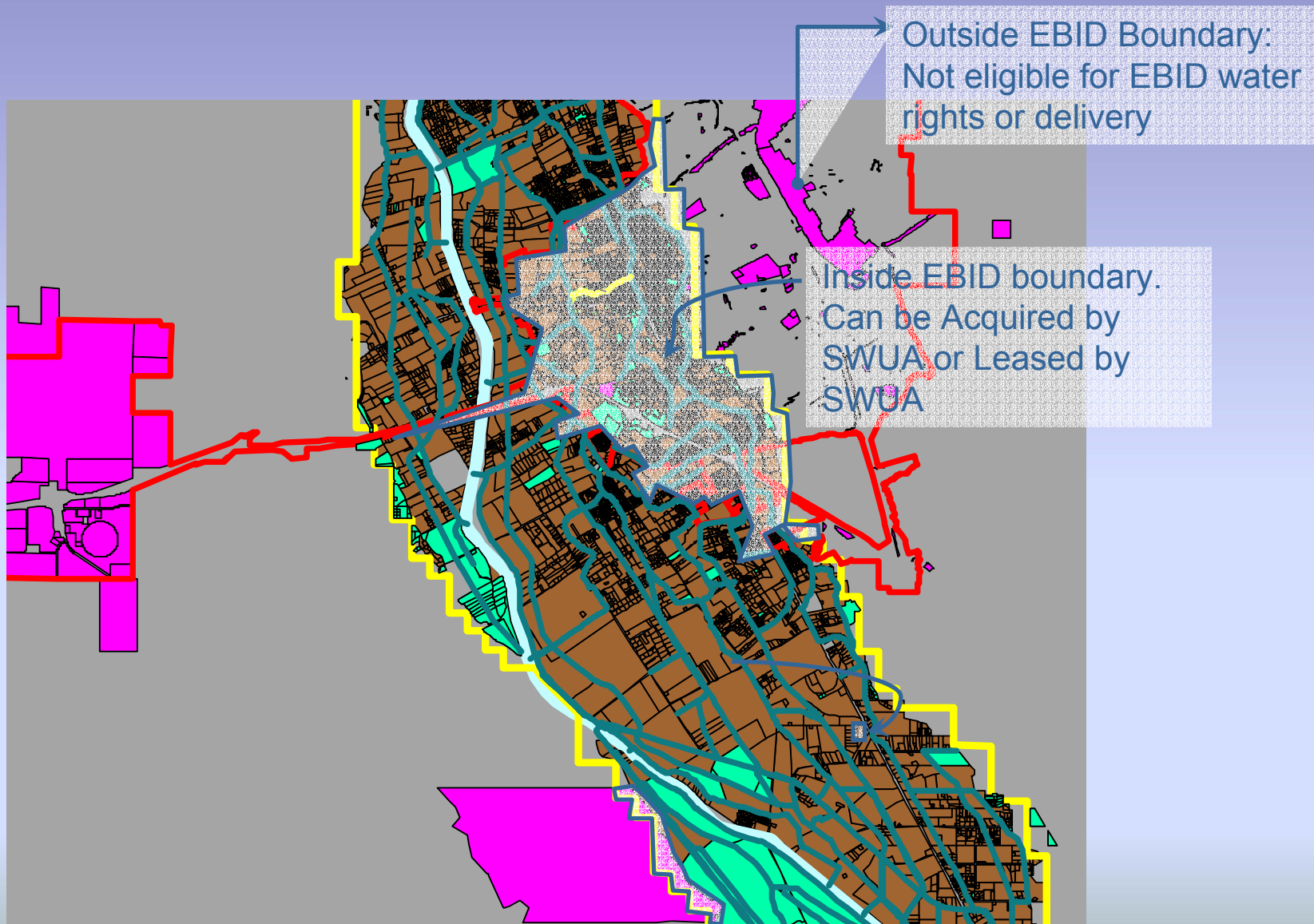


# Limitations on SWUA by EBID

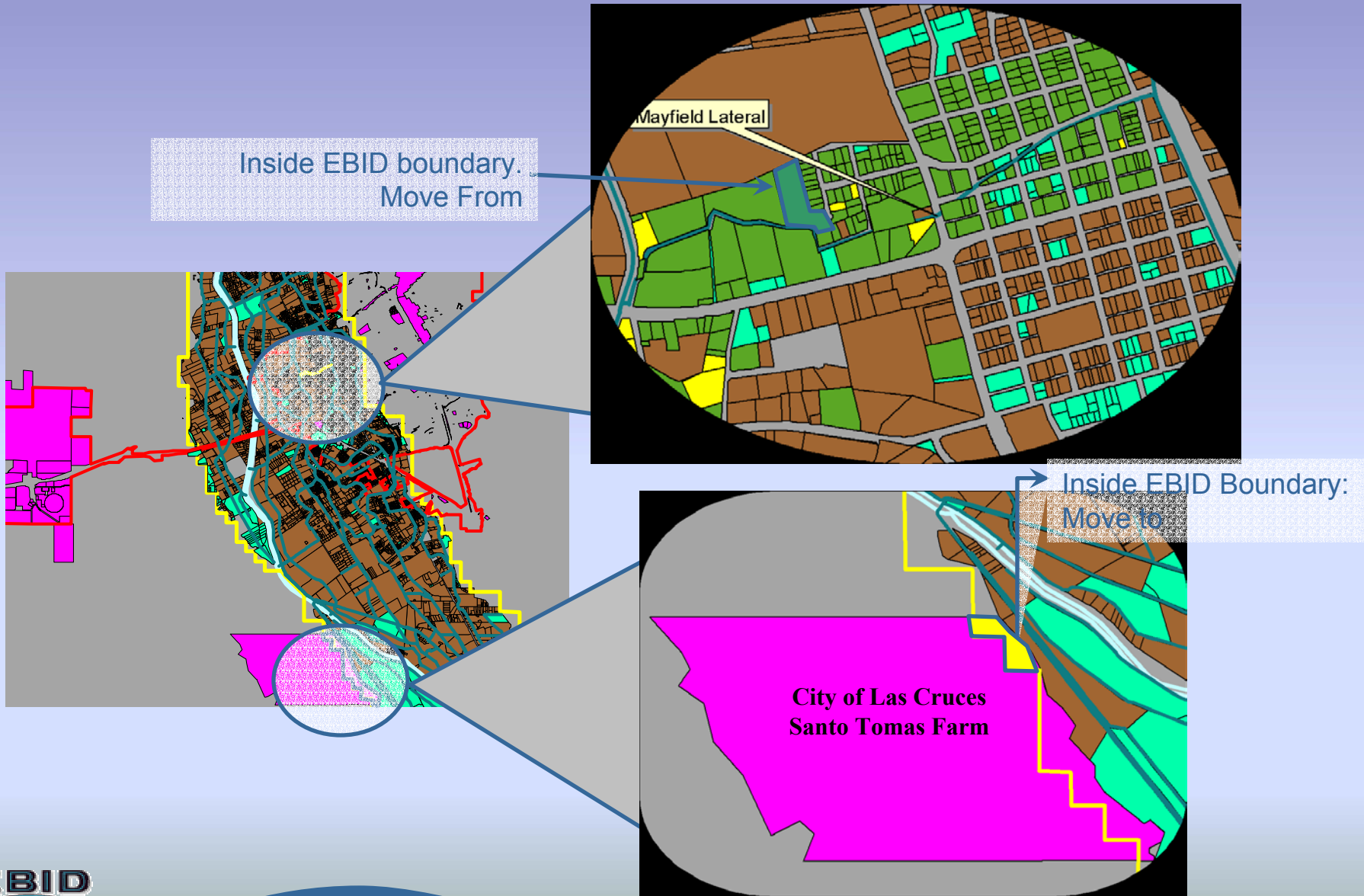
- Yearly water allocation to SWUA is diminished in water-short years the same as Agricultural members.
- Water leased from a land parcel must include the entire parcel. No partial leases allowed. SWUA must police parcel to make sure it is not irrigated.
- SWUA water goes to conservation pool for lease to other members until SWTP comes online.



# City of Las Cruces Service Area



# SWUA Transfer Process







# What's Around the Corner?



- Gary Esslinger  
District Manager

# Continual Improvements

- Intensify Water Measurement and Data Integrity through QA/QC
- Broaden Telemetry and Automation Use
- Manage Spill and Drain Water for Reuse
- Concentrate on Farm Deliveries to Parcel and Crop Type
- Farmer Service and Web Accessibility



# GOALS for the Future

- Improve District Efficiency
- Enhance GIS Application for Land and Water Management
- Accurate Water Charges and Assessments through Total Flow Management:
  - ◆ Diversions,
  - ◆ On-Farm
  - ◆ Return Flows (drainage, operations, storm flows)
  - ◆ Groundwater Pumping
- Water Conservation
- Ag. to M&I Transfers



# Thank You

